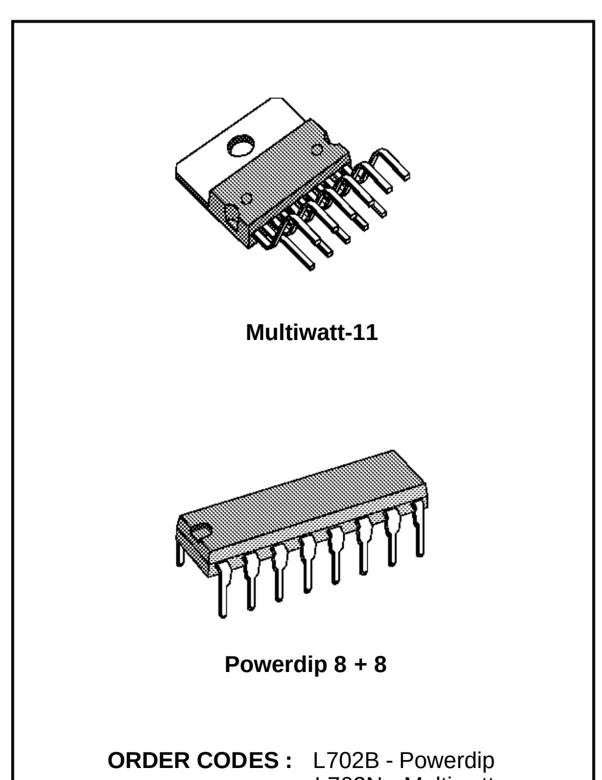


L702

2A QUAD DARLINGTON SWITCH

- SUSTAINING VOLTAGE: 70 V
- 2 A OUTPUT
- HIGH CURRENT GAIN
- IDEAL FOR DRIVING SOLENOIDS, DC MOTORS, STEPPER MOTORS, RELAYS, DISPLAYS, ETC.



ORDER CODES : L702B - Powerdip
L702N - Multiwatt



DESCRIPTION

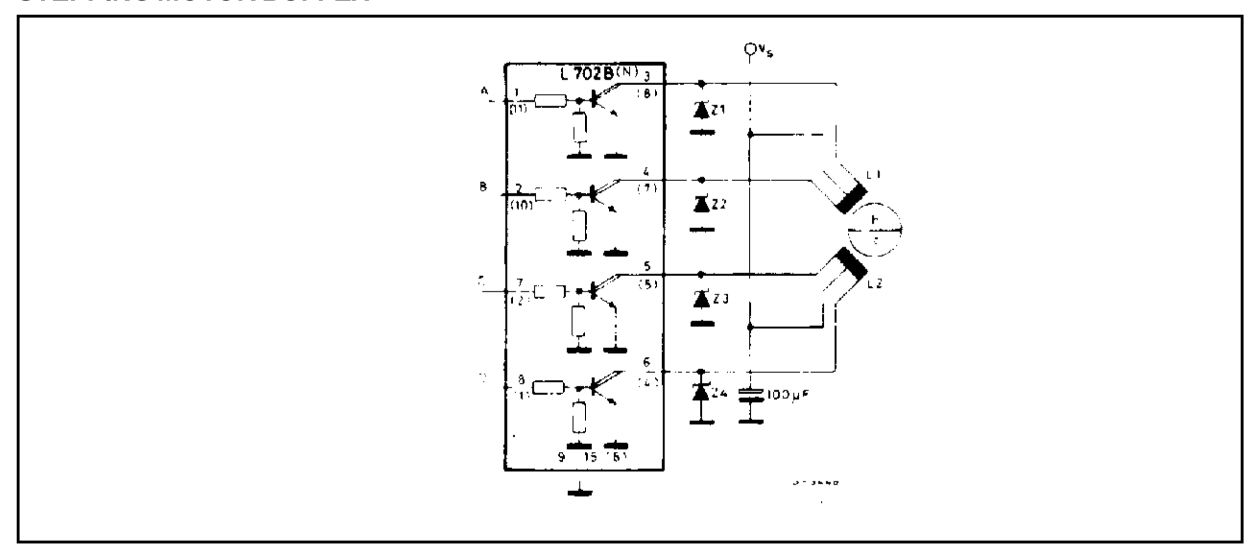
The L702 is a monolithic integrated circuit for high current and high voltage switching applications. It comprises four darlington transistors with common emitter and open collector suitable for current sinking applications mounted on the new POWERDIP and Multiwatt® packages.

This circuit reduces components, sizes and costs; it can provide direct interface between low level logic and a variety of high current applications.

ABSOLUTE MAXIMUM RATINGS

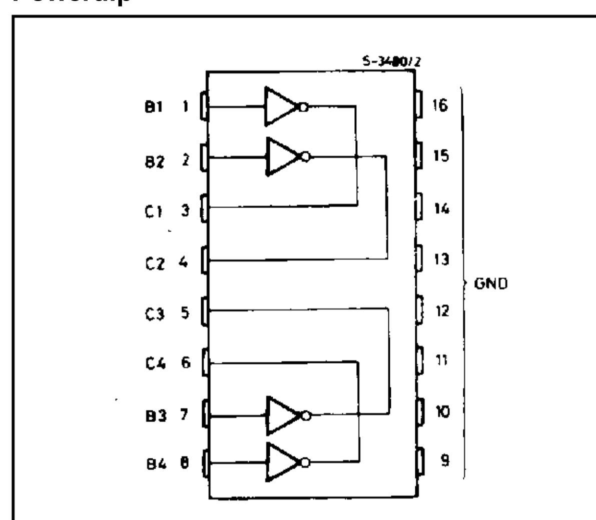
Symbol	Parameter		Value	Unit
V_{CEX}	Collector-emitter Voltage (input open)		90	V
V_i	Input Voltage		30	V
I_C	Collector Current		3	A
P_{tot}	Total Power Dissipation at T_{pin} 9 to 16 ≤ 90 °C	} Powerdip	4	W
	Total Power Dissipation at T_{amb} ≤ 70 °C		1.1	W
	Total Power Dissipationa t T_{case} ≤ 90 °C	Multiwatt	20 W	
T_{stg}	Storage Temperature		-55 to 150	°C
T_j	Operating Junction Temperature		-25 to 150	°C

STEPPING MOTOR BUFFER

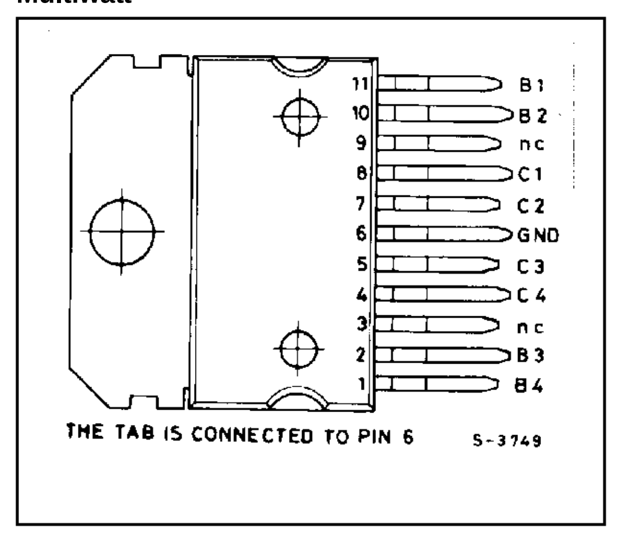


CONNECTION DIAGRAMS (top view)

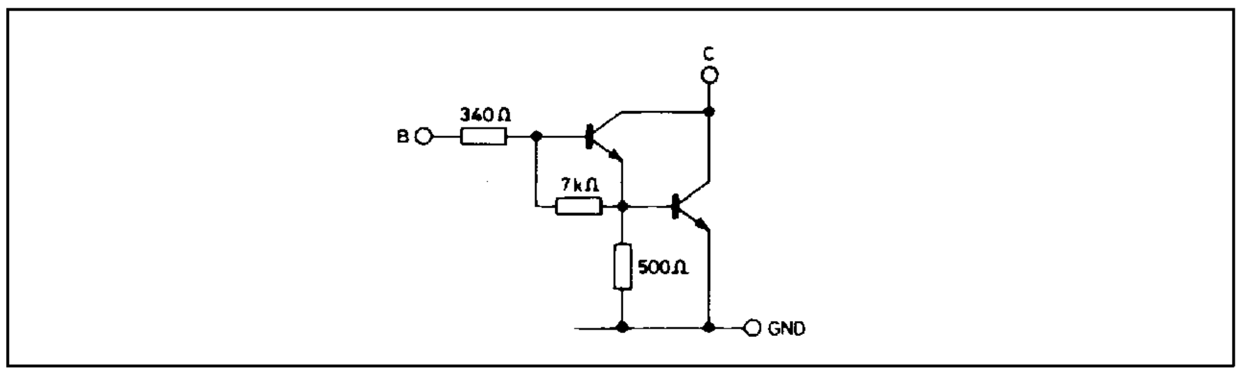
Powerdip



Multiwatt



SCHEMATIC DIAGRAM (each Darlington)



THERMAL DATA

Symbol	Parameter			Value	Unit
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction Ambient	Powerdip	Max	70	°C/W
$R_{th\ j\text{-}pins\ 9/16}$	Thermal Resistance Junction Pins 9 to 16	Powerdip	Max	14	°C/W
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Multiwatt	Max	3	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Output Leakage Current	V_{CE} = 90 V		10	50	μA
$V_{CE(sust)}$	Collector Emitter (°) Sustaining Voltage	I_C = 100 mA	70			V
$V_{CE(sat)}$	Collector Emitter Saturation Voltage	I_C = 1.25 A I_i = 2 mA		1.3	1.9	V
h_{FE}	DC Forward Current Gain	I_C = 1 A V_{CE} = 3 V	1.000	4.000		
I_i	Input Current	V_i = 3.75 V V_i = 2.4 V Open Collector		7 3	11 6	mA mA
V_i	Input Voltage Off Condition	V_{CE} = 70 V $I_C \le$ 0.1 mA			0.4	V
	Input Voltage On Condition	V_{CE} = 3 V $I_C \ge$ 1 A	2.4			V
T_{on}	Turn On Time	V_s = 12 V		0.3		μs
T_{off}	Turn Off Time	R_L = 10 Ω		1		μs

Figure 1. Switching Time.

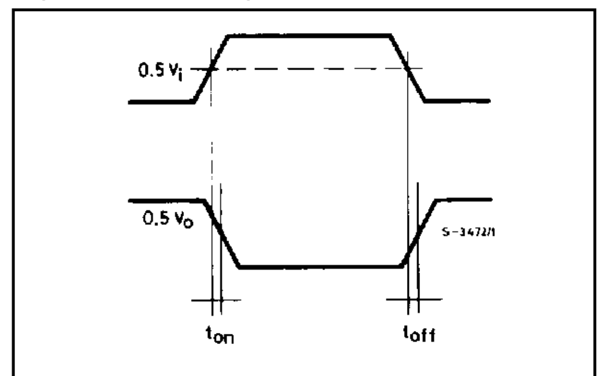


Figure 2. t_{on} and t_{off} Test Circuit.

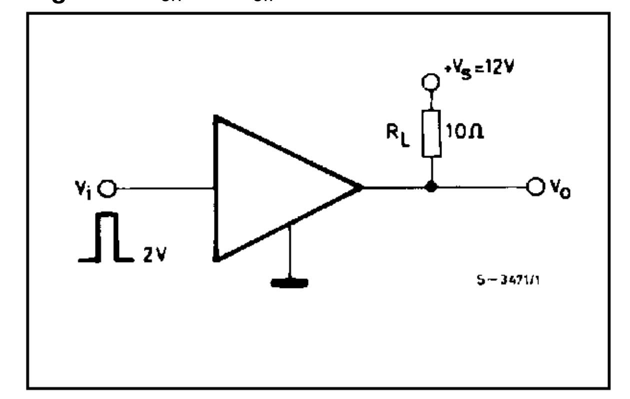


Figure 3. Peak Collector Current vs. Duty Cycle and Number of Outputs (L702B only)

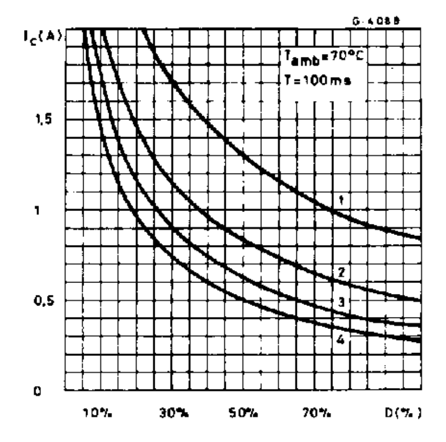


Figure 4. Collector Emitter Saturation Voltage vs. Collector Current.

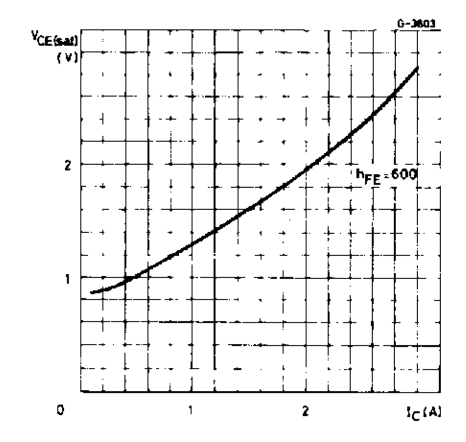


Figure 5. Collector Current vs. Input Voltage.

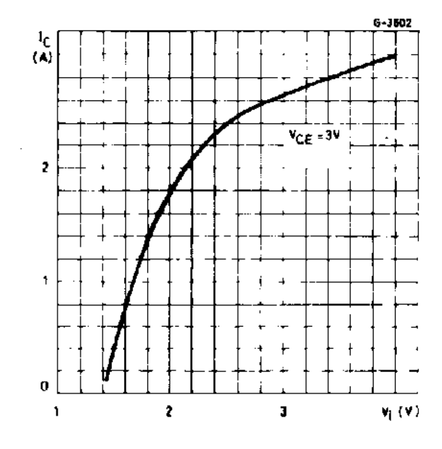


Figure 6. Input Current vs. Input Voltage.

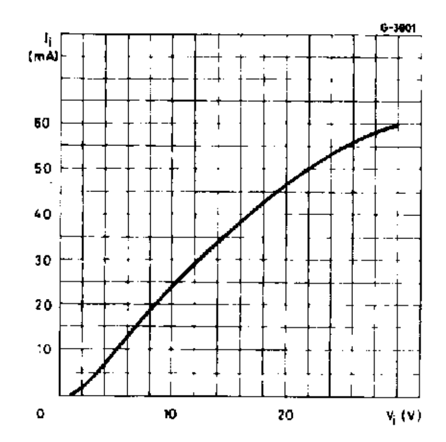


Figure 7. Safe Operating Areas (L702B).

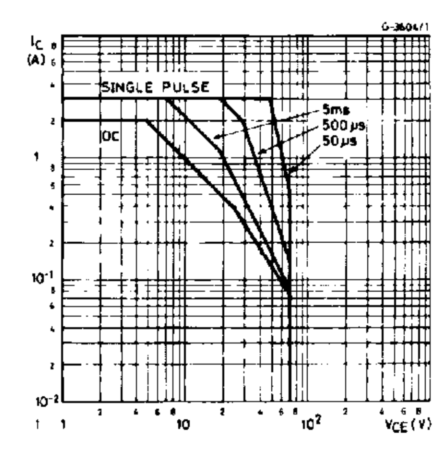
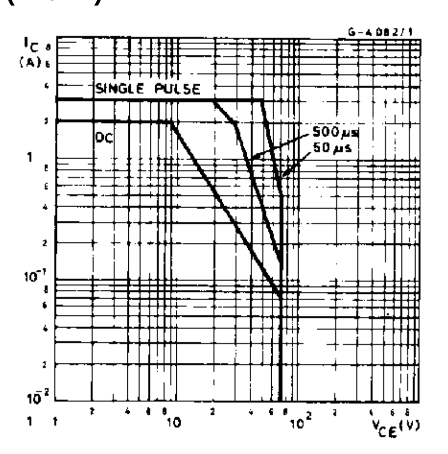
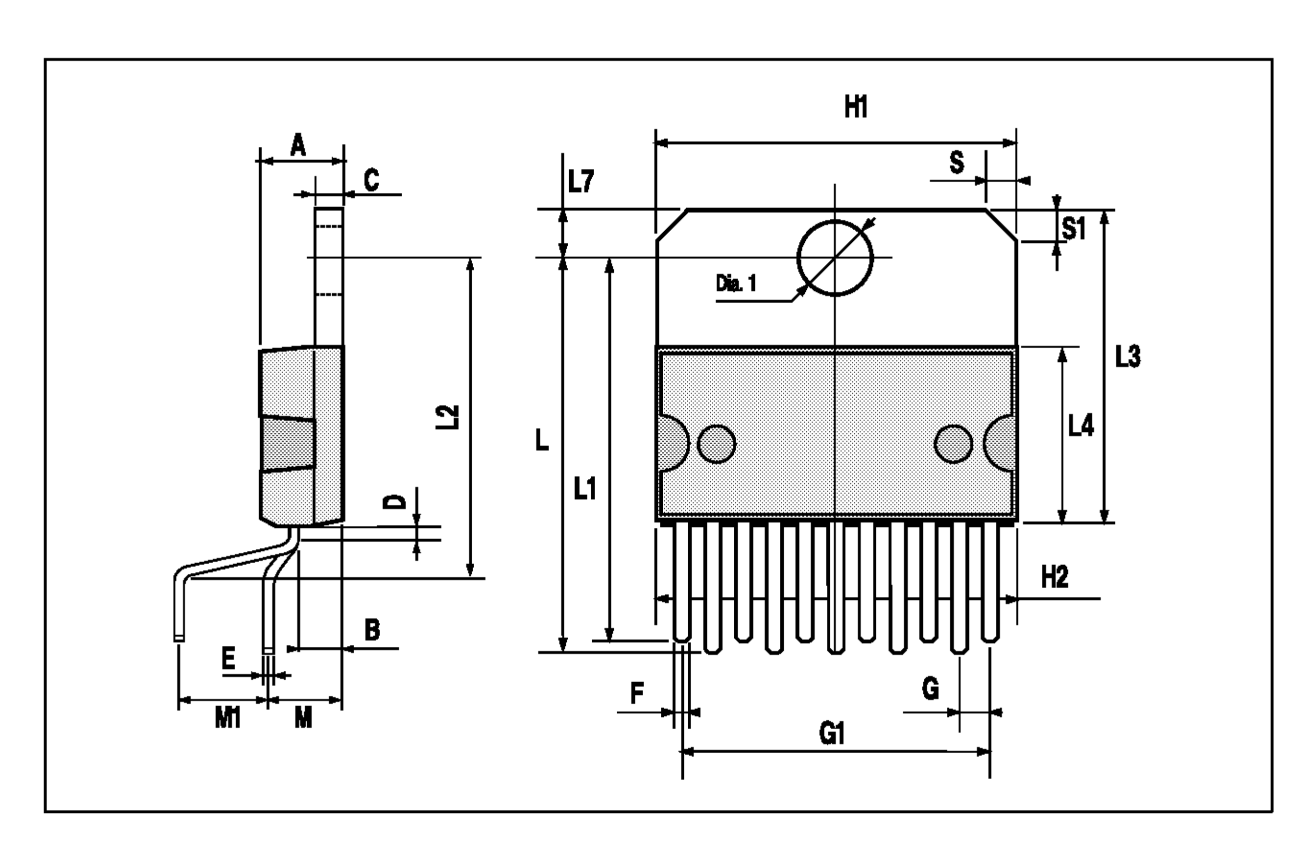


Figure 8. Safe Operating Areas (L702N).



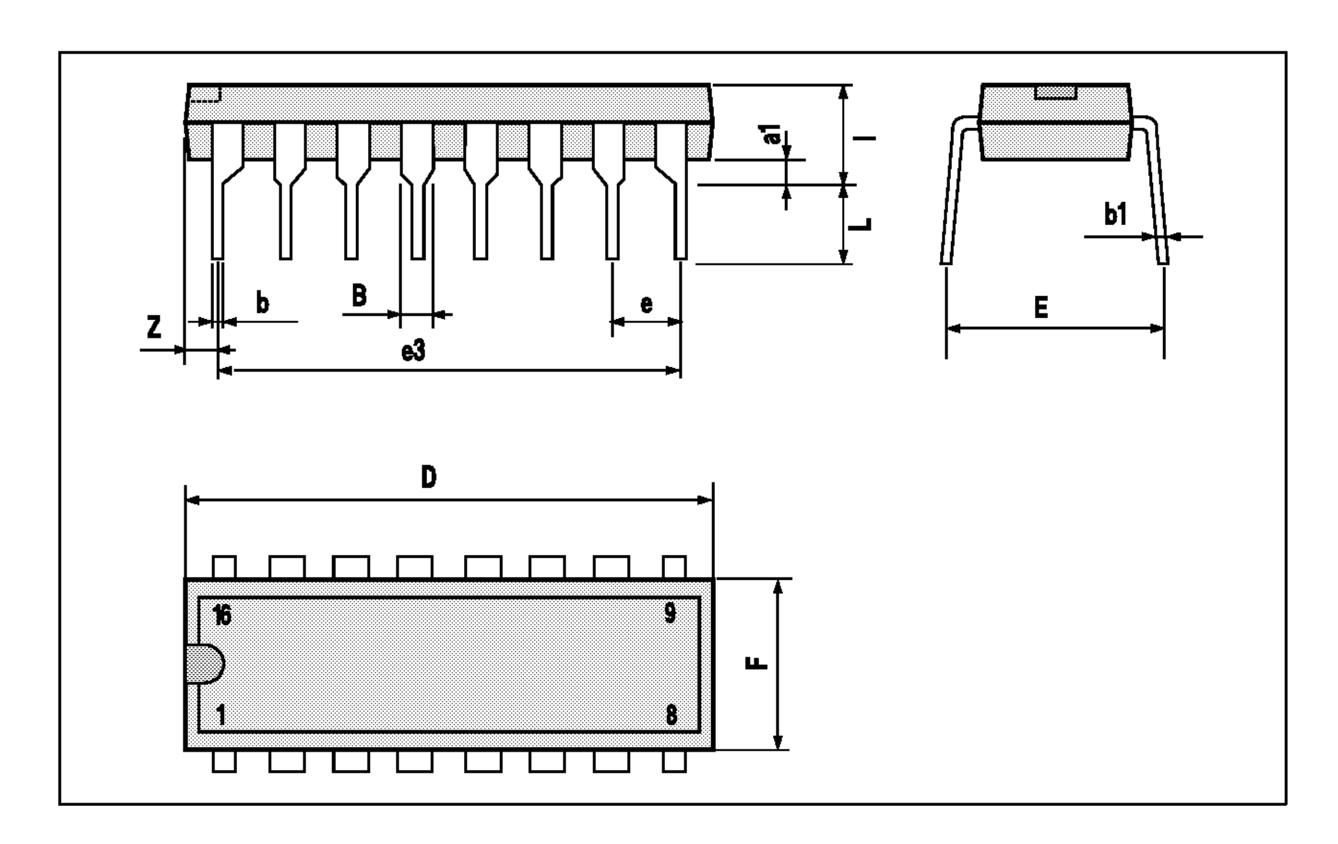
MULTIWATT11 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			5			0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.88		0.95	0.035		0.037
G	1.57	1.7	1.83	0.062	0.067	0.072
G1	16.87	17	17.13	0.664	0.669	0.674
H1	19.6			0.772		
H2			20.2			0.795
L	21.5		22.3	0.846		0.878
L1	21.4		22.2	0.843		0.874
L2	17.4		18.1	0.685		0.713
L3	17.25	17.5	17.75	0.679	0.689	0.699
L4	10.3	10.7	10.9	0.406	0.421	0.429
L7	2.65		2.9	0.104		0.114
M	4.1	4.3	4.5	0.161	0.169	0.177
M1	4.88	5.08	5.3	0.192	0.200	0.209
S	1.9		2.6	0.075		0.102
S1	1.9		2.6	0.075		0.102
Dia1	3.65		3.85	0.144		0.152



POWERDIP PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.51			0.020		
B	0.85		1.40	0.033		0.055
b		0.50			0.020	
b1	0.38		0.50	0.015		0.020
D			20.0			0.787
E		8.80			0.346	
e		2.54			0.100	
e3		17.78			0.700	
F			7.10			0.280
I			5.10			0.201
L		3.30			0.130	
Z			1.27			0.050




SGS-THOMSON
MICROELECTRONICS